

DOCUMENT RESUME

ED 264 284

TM 850 771

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TITLE Assessment of Microcomputer Attitudes of Education Students.
PUB DATE Nov 85
NOTE 15p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (14th, Biloxi, MS, November 6-8, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adult Students; *Age Differences; Attitude Change; *Attitude Measures; *Computer Science Education; Higher Education; Inservice Teacher Education; *Microcomputers; Predictor Variables; Pretests Posttests; Semantic Differential; *Sex Differences; *Teacher Attitudes; Teacher Background
IDENTIFIERS *Computer Anxiety

ABSTRACT

The attitudes of educators toward computers were assessed as well as their attitude change while taking an introductory microcomputer course. Sex and age differences were also investigated. Subjects included a sample who were surveyed by mail and a group of 22 teachers who were enrolled in a microcomputer course. A 44-item attitude questionnaire and 6 semantic differential tests were administered. Other data collected included professional involvement, grade level involvement, age, years of teaching experience, sex, computer experience, and educational level. Results indicated that: (1) there was a significant increase in positive attitudes toward computers after participation in the course; (2) educators who registered for the course had more positive computer attitudes than those who did not; (3) sex and age did not predict educators' attitudes toward computers; (4) females felt somewhat more favorable toward computer assisted instruction, flowcharting, computers, and calculators; (5) males responded more positively toward programming and BASIC language; (6) older students aged 41-70 were more positive toward computers, calculators, and computer assisted instruction; and (7) younger students aged 20-40 felt more positive toward flowcharting, programming, and BASIC language.
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Assessment of Microcomputer
Attitudes of Education Students

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Presented at the Fourteenth Annual Meeting Mid-South Educational
Research Association, November 6-8, 1985 - Biloxi, MS

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EDUCATORS' ATTITUDES TOWARD COMPUTERS

The purpose of this study was to assess the attitudes of educators toward computers and investigate the change in attitudes in educators during an introductory microcomputer course.

A summary of the literature review is presented as a background for this presentation.

The measure of attitudes toward computers has been a matter of study for some time. Rothman and Mosmann (1976) refer to a "National Survey of the Public's Attitude Toward Computers" performed by AFIPS/Time.

Educators have been shown to exhibit a certain degree of anxiety toward technology in general and computers specifically. Knight (1979) explains,

. . . many of my friends, who are over 30, recognize their anxiousness about computers. They know they have uncomfortable feelings when I talk about my work with computers. To meet the challenge of preparing the younger generation for the world around them, educators must overcome their own anxieties and spend time learning about computers and their capabilities. (p. 74)

It has been reported that some educators suffer from a form of technophobia called computerphobia. Jay (1981) reports:

. . . computerphobia appears generally in the form of a negative attitude toward technology. The negative attitude takes the form of (a) resistance to talking or even thinking about computer technology; (b) fear or anxiety, which may even create physiological consequences; and (c) hostile or aggressive thoughts and acts, indicative of some underlying frustrations. (p. 47)

Clement (1981) reports:

. . . most studies indicate that faculty reactions are mixed. Faculty attitudes range from slight interest to open hostility. Teaching styles aside, job security appears to be a principal concern of many instructors. (p. 29)

Cohen (1979) states:

. . . if we are to help teachers use computers within their classrooms, we have to begin their educational experiences with computers from their point of view (p. 32).

Morrissey (1980) offers the start of a solution:

Our first objective is to de-mystify hardware and break down the conviction that computers are for specialists. We explain the machine in familiar terms; we discuss the benefits, problems, and limitations. . . . We try hard to instill the conviction that computers are something genuinely new that have come into the educational universe, that they are a way to do instructional things we could seldom do before and possibly haven't even thought of yet. (p. 51)

The literature indicated a possibility for the educator to eliminate fears and become an informed computer literate by investigating the literature and participating in workshops or available courses including computer utilization content.

Subjects who participated in this study included persons who were surveyed by mail and a group who were enrolled in a microcomputer course.

A 44 item attitude questionnaire and six semantic differential tests were used as instruments. Demographic characteristics were obtained as a part of the questionnaire design. Demographic data included professional involvement, grade level involvement, age, years of professional

experience, sex, computer operation experience, and educational degree level.

Analysis of the data included the test for significance appropriate for the particular situation. For the purpose of this presentation these research questions were addressed:

1. Are microcomputer course student's attitudes changed by course intervention strategies?
2. Are microcomputer course student's attitudes significantly different from other persons' attitudes?
3. Is there a significant difference in attitudes of (a) males/females, (b) age groups?

Each research question was investigated by a test of an appropriate hypothesis. A statement of each hypothesis and a discussion of the test results for each, follows.

H₁: There is no significant difference in attitude toward computers between pretest and posttest of attitudes of a group of educators completing the introductory microcomputer course.

Twenty-two professional educator participants in the introductory microcomputer course were given a pretest of attitudes toward computers at the beginning of the course and a posttest of attitudes toward computers at the completion of the course. The pretest mean was 157.1 with a standard deviation of 12.0. The posttest mean was 170.7 with a standard deviation of 12.0. A correlated t-test was used to test the hypothesis. The computed t-value was 3.29 which was significant at the .05 level. Therefore the null hypothesis was rejected. These results indicated that there was a

significant difference in attitudes toward computers between pretest and posttest for course participants.

H₂: There is no significant difference in attitude toward computers between a group of educators registering for an introductory microcomputer course and a group of educators not registering for the course.

Ninety-five professional educators participated in the data collection for this test. Seventy-three educators comprised the mailout group and 22 educators were enrolled in the introductory microcomputer course.

The mean of the mailout group was 143.2 with a standard deviation of 24.1. The mean of the class group was 157.1 with a standard deviation of 21.6. The computed t-value was 2.43 which was significant at the .05 level. Therefore, the null hypothesis was rejected. These results showed a significant difference in attitudes toward computers between educators who had registered for the microcomputer course and educators who had not.

H₃: There is no significant difference between male and female educators' attitudes toward computers.

Data for the test were gathered from the responses to the pretest questionnaire on attitudes from a combination of the mailout and course participant groups. Ninety-five cases were reported as a result of this combination.

An analysis of the results showed a mean of 161.1 for male respondents with a standard deviation of 26.3. The mean for female respondents was 157.5 with a standard deviation of 24.5. The computed t-value was .63 which was not significant at the .05 level. Therefore the null hypothesis was accepted.

These results indicated that there was no significant difference between male and female subjects' attitudes toward computers.

H₄: There is no significant difference between the attitudes toward computers of selected age groups of educators.

An independent t-test was used to test the significance of this data. Age groups were combined to form two groups, 20 to 40 and 41 to 70.

An analysis of the results showed that the age group 20 to 40 had a mean score of 155.2 and a standard deviation of 24.3. The age group 41 to 70 had a mean of 165.1 and a standard deviation of 25.2. The computed t-value of 1.84 was not significant at the .05 level. Therefore, the null hypothesis was accepted. These results indicated no significant difference between the selected age groups 20 to 40 and 41 to 70 on their attitudes toward computers.

In addition to the hypothesis investigation six semantic differential instruments were administered on six different days as the class progressed. The concepts were Computers, Calculators, Computer Assisted Instruction, Flowcharting, Programming, and BASIC Language. Class participants were asked to mark their responses to the semantic differentials after receiving instruction in a particular concept.

Females scored higher on every concept except Programming and Basic Language. The means showed little difference on all concepts between male and female participants.

In the category AGE, the 41 to 70 age group means were higher on the concepts Computers, Calculators, and Computer Assisted Instruction. The 20 to 40 group scored higher on the concepts Flowcharting, Programming, and BASIC Language. Here again the difference in the means was small.

Conclusions

1. An introductory microcomputer course can influence educators' attitudes toward computers in a positive direction.
2. Educators who would register for an introductory microcomputer course seem to have better attitudes than educators in general toward computers.
3. Sex and age do not appear to be a factor in educators' attitudes toward computers.
4. The attitudes of participants appeared to vary according to certain concepts and between demographic categories. Females appeared to be more favorable toward the concepts of Computer-Assisted Instruction, and Flowcharting, but males indicated more positive feelings toward the concepts of Programming and BASIC Language.
5. The older age group (41 to 70) would appear to have more positive reactions toward the concepts of Computers, Calculators, and Computer Assisted Instruction while the lower age group (20 to 40) indicated more positive feelings toward the concepts of Flowcharting, Programming, and BASIC Language.

TABLE 1
ATTITUDE CHANGE TOWARD COMPUTERS BETWEEN PETEST
AND POSTTEST OF EDUCATORS COMPLETING THE
INTRODUCTORY MICROCOMPUTER COURSE

Group	Mean	Standard Deviation	T-Value
Pretest	157.1	21.6	3.29*
Posttest	173.7	12.0	

N = 22

*p < .05

TABLE 2
A COMPARISON OF ATTITUDES TOWARD COMPUTERS
BETWEEN MAILOUT GROUP AND CLASS GROUP

Group	N	Mean	Standard Deviation	T-Value
Mailout	73	143.2	24.1	2.43*
Class	22	157.1	21.6	

*p < .05

TABLE 3
A COMPARISON OF ATTITUDES TOWARD COMPUTERS SCORES
BETWEEN ALL MALE AND FEMALE RESPONDENTS

Group	N	Mean	Standard Deviation	T-Value
Male	27	161.1	26.3	.63
Female	68	157.5	24.5	

NS

TABLE 4
A COMPARISON OF ATTITUDES TOWARD COMPUTERS
SCORES BETWEEN EDUCATOR AGE GROUPS

Age Groups	N	Mean	Standard Deviation	T-Value
20-40	63	155.2	24.3	1.84
41-70	32	165.1	25.2	

NS

FIGURE 1

MEAN SCORES ON SEMANTIC DIFFERENTIAL BY CATEGORY SEX

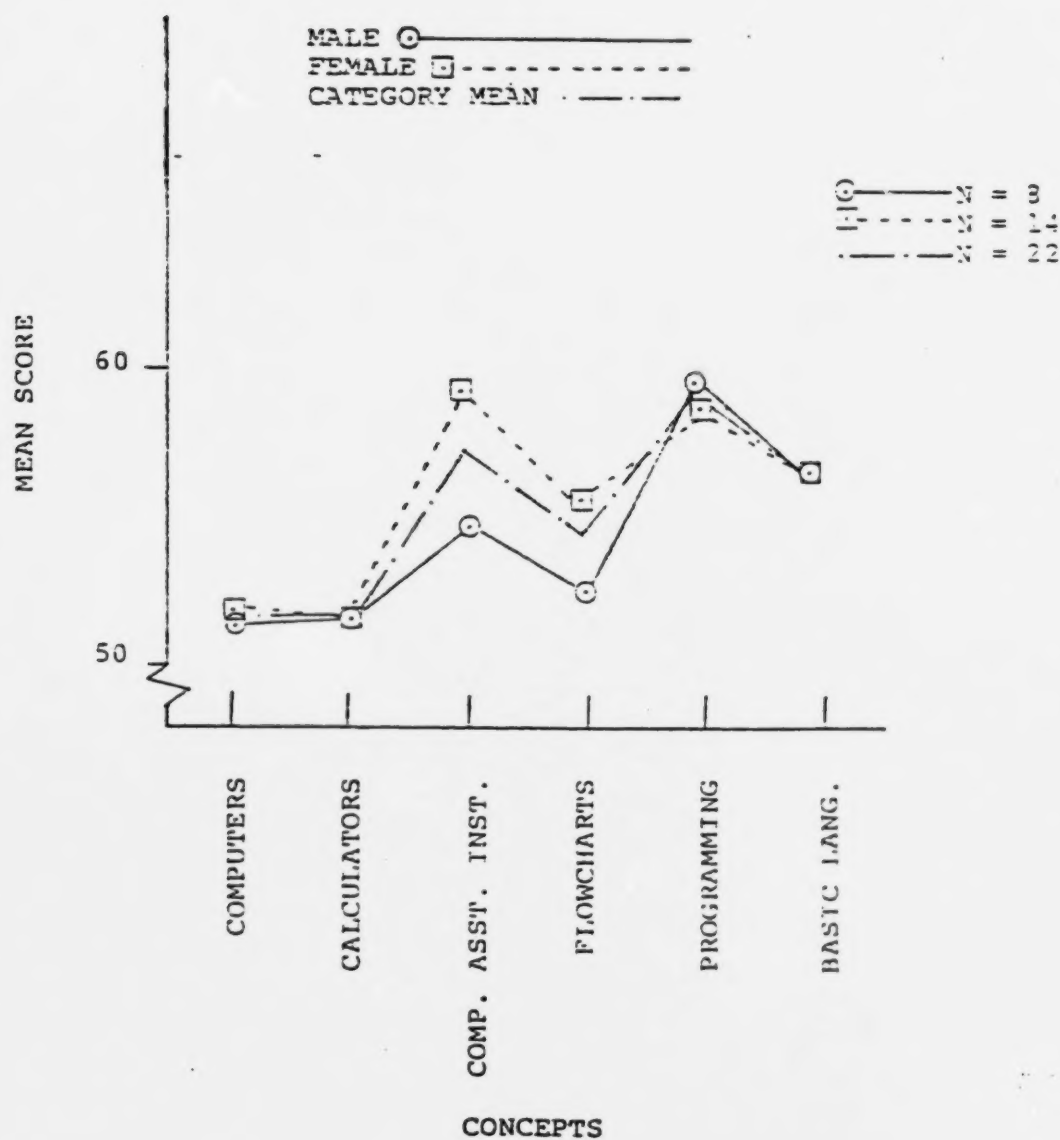
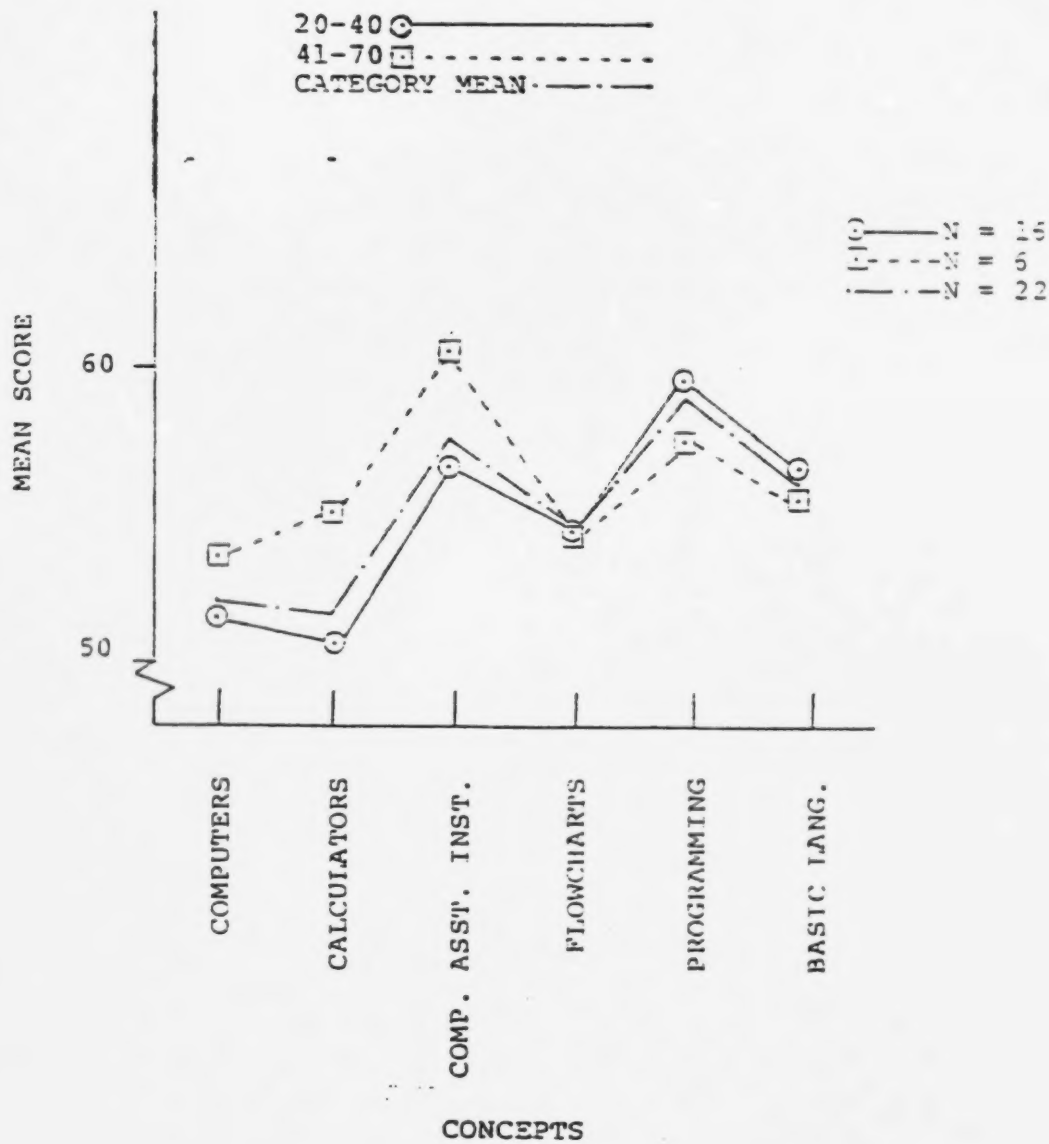


FIGURE 2

MEAN SCORES ON SEMANTIC DIFFERENTIAL BY CATEGORY AGE



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